CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/KJ/W.No.14/BC/Bitumen/2017-18 10.05.2017

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K. Jagadish,** #3424, 6th Cross, Gayathrinagar, Bangalore – 560 021.
* Name of Work	:	Improvements and Asphalting 5th, 6rh, 7th & 8th Cross (Between 7th Main and 8th Main) Bhuvaneshwari Nagara in Bagalagunte Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/DZ/AEE/TDSD/PR/04/2017-18 Dated: 10.04.2017
* Sample ID	:	5th to 8th Cross Roads Bhuvanehwari Nagara Ward No.14.
Technical Reference	:	IS 2386 and IRC:SP:11-1984
Date of Testing	:	10.05.2017

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.23	9.54	9.54	90.46	79-100
9.5	32.15	6.78	16.32	83.68	70-88
4.75	71.23	15.03	31.35	68.65	53-71
2.36	62.23	13.13	44.48	55.52	42-58
1.18	55.13	11.63	56.11	43.89	34-48
0.6	53.35	11.26	67.37	32.63	26-38
0.3	46.65	9.84	77.21	22.79	18-28
0.15	36.65	7.73	84.94	15.06	12-20
0.075	30.22	6.38	91.32	8.68	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.65	7.74	7.74	92.26	79-100
9.5	46.21	9.76	17.50	82.50	70-88
4.75	65.56	13.85	31.35	68.65	53-71
2.36	71.22	15.04	46.39	53.61	42-58
1.18	60.22	12.72	59.10	40.90	34-48
0.6	52.12	11.01	70.11	29.89	26-38
0.3	30.22	6.38	76.49	23.51	18-28
0.15	30.22	6.38	82.88	17.12	12-20
0.075	42.32	8.94	91.81	8.19	4-10

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KJ/W.No.14/BC/Agg/2017-18 10.05.2017

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K. Jagadish,** #3424, 6th Cross, Gayathrinagar, Bangalore – 560 021.
* Name of Work	:	Improvements and Asphalting 5th, 6rh, 7th & 8th Cross (Between 7th Main and 8th Main) Bhuvaneshwari Nagara in Bagalagunte Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/DZ/AEE/TDSD/PR/04/2017-18 Dated: 10.04.2017
* Sample ID	:	Bituminous Concrete
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	10.05.2017

Total Weight of Sample: **5300** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-18
13.2	790	14.91	14.91	85.09	79 - 100	
9.5	525	9.91	24.81	75.19	70 - 88	
4.75	600	11.32	36.13	63.87	53 - 71	
2.36	540	10.19	46.32	53.68	42 - 58	
1.18	555	10.47	56.79	43.21	34 - 48	
0.600	525	9.91	66.70	33.30	26 - 38	
0.300	595	11.23	77.92	22.08	18 - 28	
0.150	420	7.92	85.85	14.15	12 - 20	
0.075	400	7.55	93.40	6.60	4 - 10	

Total Weight of Sample: **5350** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	635	11.87	11.87	88.13	79 - 100	
9.5	535	10.00	21.87	78.13	70 - 88	
4.75	615	11.50	33.36	66.64	53 - 71	
2.36	645	12.06	45.42	54.58	42 - 58	
1.18	645	12.06	57.48	42.52	34 - 48	
0.600	560	10.47	67.94	32.06	26 - 38	
0.300	590	11.03	78.97	21.03	18 - 28	
0.150	380	7.10	86.07	13.93	12 - 20	
0.075	400	7.48	93.55	6.45	4 - 10	

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

****

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KJ/W.No.14/BC/Stability/2017-18 10.05.2017

TEST REPORT ON MARSHALL STABILITY OF MIX

*** Customer**	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. K. Jagadish,** #3424, 6th Cross, Gayathrinagar, Bangalore – 560 021.
***Name of the Work**	:	Improvements and Asphalting 5th, 6rh, 7th & 8th Cross (Between 7th Main and 8th Main) Bhuvaneshwari Nagara in Bagalagunte Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
***Reference**	:	BBMP/DZ/AEE/TDSD/PR/04/2017-18 Dated: 10.04.2017
*** Source**	:	Hot mix Plant, Bangalore
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	10.05.2017

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability, Kn	9.30	9.65	9 Kn (min)
2	Marshall flow, mm	2.60	3.55	2 – 4
3	Percent air voids in Mineral Aggregate	3.35	4.15	3 – 6
4	Voids in Compacted Mix	13.95	14.15	13 - 15
5	Percent Voids filled with Bitumen	67.20	68.35	65 - 75
6	Density, g/cc	2.26	2.27	--

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/KJ/W.No.14/BM/Sp_Wa/2017-18 09.05.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K. Jagadish,** #3424, 6th Cross, Gayathrinagar, Bangalore – 560 021.
* Name of Work	:	Improvements and Asphalting 5th, 6rh, 7th & 8th Cross (Between 7th Main and 8th Main) Bhuvaneshwari Nagara in Bagalagunte Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/DZ/AEE/TDSD/PR/04/2017-18 Dated: 10.04.2017
Technical reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	09.05.2017

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 2	
1	Weight of aggregate suspended in water with the basket	W_1 g	2006	2008	2005	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1256	1258	1255	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2012	2013	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	759	754	758	
6	Weight of oven dried aggregate	W_4 g	2003	2004	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.639	2.658	2.645	2.642
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.681	2.686	2.673	2.677
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.60%	0.40%	0.40%	0.50%

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KJ/W.No.14/GSB-1/AL/2017-18 Date 12.04.2017

TEST REPORT ON ATTERBERG LIMITS FOR GRANULAR SUB BASE

*** Customer**	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. K. Jagadish,** #3424, 6th Cross, Gayathrinagar, Bangalore – 560 021.
*** Name of work**	:	Improvements and Asphalting 5th, 6rh, 7th & 8th Cross (Between 7th Main and 8th Main) Bhuvaneshwari Nagara in Bagalagunte Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
*** Reference**	:	BBMP/DZ/AEE/TDSD/PR/04/2017-18 Dated: 10.04.2017
*** Sample ID**	:	GSB- (Coarse graded-I)
Technical Reference	:	IS : 2720 (Part - 5) 1985 (RA-2010), MORTH Table : 400-01
Date of Testing	:	12.04.2017

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	22.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Civil-Tech Consultants & Engineers Bangalore

* Information is furnished by the Customer/Representative

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

ಯುವರಿಂದ ಜಂಯಾಜಾಲ ಅಧಿಯಿಂದ
ಟಿ.ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬಾಗಲಗುಂಟೆ, ಬಿಬಿಎಂಪಿ
ಬೆಂಗಳೂರು